

CLAIMS

1. An apparatus for the diagnosis and/or therapy of neuro-muscular disorders, comprising:
a control module for controlling the parameters of an electrical pulse suitable for stimulating a muscle or muscle group, and
one or more conductor tools for delivering the electrical pulse to a muscle or muscle group, wherein the control module is configured to enable the adjustment of the parameters of the electrical pulse at levels suitable for stimulating muscles or muscle groups at a micro-level.
2. An apparatus as claimed in claim 1 wherein the controlled parameters include pulse width of the electrical pulse at levels in the range 1/30 000 (33 μ s) to 1/7500 (132 μ s).
3. An apparatus for the manipulation of tissue comprising:
a control module for controlling the parameters of an electrical pulse suitable for innervating nerves in the tissue, and
one or more conductor tools for delivering the electrical pulse to the nerves, wherein the control module is configured to enable the adjustment of the width of the electrical pulse at levels in the range 1/30 000 (33 μ s) to 1/7500 (132 μ s) and/or the pulse repetition frequency at levels below about 500 Hz (500IMP/s).
4. An apparatus as claimed in claim 2 wherein the range of pulse width levels includes 1/15 000 (66 μ s).
5. An apparatus as claimed in claim 1 wherein the controlled parameters include pulse repetition frequency at levels below about 500Hz.

6. An apparatus as claimed in claim 5 wherein the pulse repetition frequency is controllable in a range between 1Hz and 115Hz.
7. An apparatus as claimed in claim 1 wherein the controlled parameters include peak output voltage in a range of 0-130V.
8. An apparatus as claimed in claim 1 wherein the controlled parameters include the polarity of the electrical pulse.
9. An apparatus as claimed in claim 1 wherein the conductor tools comprise electrode pads.
10. An apparatus as claimed in claim 9 wherein the conductor tools include electrode pads having an active area of about 60mm by about 45mm.
11. An apparatus as claimed in claim 1 further comprising a bath suitable for receiving and holding saline solution at a temperature of between about 36°C and 42°C.
12. An apparatus as claimed in claim 11, wherein the bath comprises a control panel for monitoring and/or controlling inter alia the temperature of fluid contained therein.
13. A conductor tool for an apparatus for the diagnosis and/or therapy of neuro-muscular disorders, comprising;
a frame of electrically conductive material having rotatably mounted thereon an electrically conductive roller and a handle of electrically insulating material, the roller being mounted in electrically conductive communication with the frame, and means for electrically connecting the tool with a controlled electrical pulse.

14. A conductor tool as claimed in claim 13 wherein the roller and handle are mounted at opposing ends of the frame.
15. A conductor tool as claimed in claim 14 wherein the handle is mounted at an angle substantially perpendicular to the axis of the roller.
16. A conductor tool as claimed in claim 13 wherein the means for electrically connecting the tool with the controlled electrical pulse are provided adjacent the handle and removed from the electrically conductive roller.
17. A conductor tool as claimed in claim 13 wherein the roller is removable from the frame and replaceable with a roller of a different size.
18. A method for the manipulation of tissue comprising innervating the nerves of the tissue using an electrical pulse having a pulse width in the range 1/30 000 ($33\mu s$) to 1/7500 ($132\mu s$) and/or a pulse repetition frequency at levels below about 500 Hz (500IMP/s).
19. A method as claimed in claim 20 wherein the pulse repetition frequency is between about 1Hz and 115Hz.
20. A method as claimed in claim 20 wherein the pulse has a peak output voltage in a range of 0-130V.
21. A methods as claimed in claim 20 wherein the tissue is submerged in an ionic solution at a temperature of between about 36°C and 42°C.

22. A method for diagnosis or therapy of neuro-muscular disorders comprising recruiting muscles in a muscle group by applying an electrical impulse to the muscle group, the electrical impulse being characterised by a pulse width in the range 1/30 000 (33 μ s) to 1/7500 (132 μ s).
23. A method as claimed in claim 24 wherein the electrical impulse is further characterised by a pulse repetition frequency below about 500Hz.
24. A method as claimed in claim 25 wherein the pulse repetition frequency is in the range 1Hz to 115Hz.

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